

## REMARKS

By the above amendment, independent claims 5 and 6 have been amended to clarify features thereof by essentially repeating the manner of detection of the displacement of the wafer in the last paragraph of each claim. That is, claims 5 and 6 have been amended to recite "wherein initial positioning of said wafer is performed in atmospheric air, and the displacement of said wafer in the transverse direction with respect to the traveling direction near the ingress path of said wafer to said vacuum processing chamber is detected directly just prior to the predetermined treatment within said vacuum processing chamber". It is noted that the underlined portion conforms to the previously recited step in claim 5 of "a step of detecting displacement of said wafer in a transverse direction with respect to a traveling direction near an ingress path of said wafer to said vacuum processing chamber". Thus, it is apparent that the amendments to claims 5 and 6 is of a clarifying nature reciting the previously recited features which were inherently recited in such claims, and do not raise any new issues requiring further search and/or consideration. Likewise, dependent claims 7 and 9 have been amended in a similar manner.

The rejection of claims 5 - 7 and 9 under 35 USC 102(b) as being anticipated by US Patent No. 6,198,976 to Sundar et al, is traversed, and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that

reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

Before discussing the non-applicability of Sundar et al to the claimed invention, applicants note that the present invention recites a "method" which sets forth a particular manner of carrying out the method steps. Thus, in terms of a method, and in accordance with the decision of In re Robertson, supra, applicants submit that the specific method steps must be fully disclosed in Sundar et al, and insofar as the Examiner may contend that the method steps are inherent in Sundar et al, as noted in the aforementioned decision, inherency, may not be established by probabilities or possibilities, so that the mere fact that a certain thing may result from a given set of circumstances is not sufficient.

In accordance with the present invention, as illustrated in Fig. 1 and as described in the second full paragraph at page 6 of the specification, "Reference numbers 11a, 11b, 11c and 11d show position sensors for detecting the displacement of the transfer position of the wafers ... These position sensors are disposed near the ingress path through which the wafer enters and exits the processing chambers (for example, near the entrance of the processing chambers)." Furthermore, as described in connection with Fig. 3, in the first full paragraph at page 10 of the specification, "The correct position 601 of the wafer passing reference line I<sub>1</sub> in the arrow direction is recorded in advance in the image recognizing unit.

Next, the system recognizes the wafer position 602 of the actual wafer being transferred by the vacuum robot passing the reference line  $l_1$ . Thereafter, by comparing these two positions, the image recognition unit can determine how far the wafer is displaced from the correct position 601 when it passed the line. Therefore, by moving the arm of the vacuum robot 10 in the transverse direction with respect to the traveling direction by an amount corresponding to the detected displacement quantity  $\Delta l$ , the transfer position of the wafer can be corrected. Further, since the distance of travel of the wafer from the reference line  $l_1$  to the center stage of the processing chamber (distance of movement in the traveling direction) can be computed in advance, the movement within this distance can be controlled sufficient by fixed value control." (emphasis added). Applicants note that this detection of the displacement of the wafer in the manner set forth, which takes place during the vacuum transfer step in the vacuum transfer chamber, differs from an initial positioning, which includes a centering or aligning of the wafer, which is performed in atmospheric air utilizing the atmospheric robot 7 in connection with a centering unit 6a which corrects the position of the wafer, so that it is positioned correctly within the processing chamber during subsequent procedures, as described in the first full paragraph at page 7 of the specification, for example. Thus, as recited in each of independent claims 5 and 6, in which in the vacuum transfer step, the wafer is transferred within the vacuum transfer chamber to a position for predetermined treatment within the vacuum processing chamber, there is recited "a step of detecting displacement of said wafer in a transverse direction with respect to a traveling direction near an ingress path of said wafer to said vacuum processing chamber by comparing a correct position of said wafer passing a line which is predetermined in advance with an actual position of said wafer being transferred by

said vacuum transfer equipment" (emphasis added) as well as the feature of "wherein initial positioning of said wafer is performed in atmospheric air, and the displacement of said wafer in the transverse direction with respect to the traveling direction near the ingress path of said wafer to said vacuum processing chamber is detected directly just prior to the predetermined treatment within said vacuum processing chamber" (emphasis added). Thus, the claims recite particular method steps carried out in a particular manner.

The Examiner contends that Sundar et al discloses;

a step of detecting the displacement of said wafer (column 12, rows 63-65) in a transverse direction (the displacement can be detected while moving any direction) with respect to a traveling direction near an ingress path of said wafer to said vacuum processing chamber by comparing a correct position of said wafer passing a line which is predetermined in advance with an actual position of said wafer being transferred by said vacuum transfer equipment; (emphasis added)

and that:

initial positioning/alignment of said wafer is performed in atmosphere (column 11, rows 1-18) and the displacement (center-finding) of said wafer is detected directly just prior to the processing within said vacuum chamber (column 12, rows 63-65).

Irrespective of the position set forth by the Examiner, as noted in the "Abstract" of Sundar et al, this patent is directed to "A substrate center-finding method and apparatus, for determining the center of a substrate pass through a substrate handling chamber ..." (emphasis added). The manner of determining the center of the substrate is generally described in the "Abstract" and further described in the specification. Applicants submit that it is not seen that Sundar et al discloses in the sense of 35 USC 102 "detecting displacement of the wafer in a transverse direction with respect to a traveling direction near an ingress path of said wafer to the vacuum processing chamber by comparing a correct position of said wafer passing a line which is predetermined in advance with an actual position of said wafer being

transferred by said vacuum transfer equipment" (emphasis added), as recited in each of independent claims 5 and 6 of this application.

Additionally, as described in column 6, lines 27 - 38 of Sundar et al, as referred to by the Examiner, the substrate handler 128, which operates in the mini-environment 120, serves for determining the location of the center of the substrate, while the substrate handler 128 moves the substrate through the mini-environment 120. As indicated by the Examiner, the mini-environment 120 represents an atmosphere environment. As described in column 12, lines 48 - 58 of Sundar et al, "In operation, ... the substrate handler 128 moves the substrates 156 from the pod 154 through the mini-environment 120 and into one of the load lock chambers 118 ... During each substrate movement, the substrate triggers the center-finding system, so the controller can calculate the center of the substrate and correct the position of the substrate before the substrate reaches the load lock chamber 118." (emphasis added). Thus, the center-finding system is rendered operational during the movement of the substrate from the pod 154 to the load lock chamber 118 in the mini-environment 120, and applicants submit, assuming arugendo, that Sundar detects displacement of a wafer, the displacement of the wafer is not detected "in a transverse direction with respect to a traveling direction near an ingress path of said wafer to said vacuum processing chamber by comparing a correct position of said wafer passing a line which is predetermined in advance with an actual position of said wafer being transferred by said vacuum transfer equipment", (emphasis added), as recited in independent claims 5 and 6. Accordingly, applicants submit that claims 5 and 6 patentably distinguish over Sundar et al with respect to such features in the sense of 35 USC 102.

Furthermore, while the Examiner refers to column 12, rows 63 - 65 of Sundar et al, which provides, "In an alternative embodiment, the center-finding procedure may be done in the transfer chamber 112, while the substrate is moved therethrough." (emphasis added). Applicants submit that the utilization of "alternative" is indicative of the fact that rather than the center-finding procedure being carried out in the mini-environment 120 by the substrate handler 128, the center-finding procedure is carried out by the transfer chamber substrate handler 116 in the transfer chamber 112. However, applicants submit that such does not provide the method steps of independent claims 5 and 6 of "a step of detecting the displacement of said wafer in a transverse direction with respect to a traveling direction near an ingress path of said wafer to said vacuum processing chamber by comparing a correct position of the wafer passing a line which predetermined in advance with an actual position of said wafer being transferred by said vacuum transfer equipment added) and/or the feature of "wherein initial positioning of said wafer is performed in atmospheric air and the displacement of said wafer in the transverse direction with respect to the traveling direction near the ingress path of said wafer to said vacuum processing chamber is detected directly just prior to the predetermined treatment within said vacuum processing chamber". (emphasis added). Such features are not disclosed in Sundar et al in the sense of 35 USC 102 and, in fact, since column 12, lines 63- 65 of Sundar et al describes the alternative of the center-finding at any point during the movement of the wafer in the transfer chamber 112, it is readily apparent that the center-finding procedure is not effected in the mini-environment 120 thereof. Thus, applicants submit that Sundar et al, in the alternative embodiment, does not perform a center-finding procedure or initial positioning in the mini-environment 120 thereof, when the center-finding procedure is

effected in the transfer chamber 112 thereof. As such, it is apparent that the recited features of claims 5 and 6 and therewith the dependent claims 7 and 9 patentably distinguish over Sundar et al in the sense of 35 USC 102 and should be considered allowable thereover.

With respect to claims 7 and 9, whether or not it may be considered that Sundar et al discloses detecting a rim position of the wafer, it is apparent that Sundar et al does not compare a correct position of the wafer passing a line which is predetermined in advance, irrespective of the Examiner's comments, and that while the Examiner contends that the transfer chamber is proximate processing chamber, there is no disclosure in Sundar et al of displacement being detected at a position proximate to an inlet of the vacuum processing chamber which effects the predetermined treatment of the wafer. Again, applicants note that it is apparent that these features are not expressly described in Sundar et al, and insofar as the Examiner contends that such features are inherent, as noted in the decision of In re Robertson, supra, inherency may not be established by probabilities or possibilities, and that the mere fact that a certain thing may result from a given set of circumstances is not sufficient to support a rejection under 35 USC 102. Accordingly, applicants submit that the dependent claims recite further features not disclosed by Sundar et al in the sense of 35 USC 102 and such claims should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application patentably distinguish over Sundar et al in the sense of 35 USC 102 and should be considered allowable thereover. Accordingly, issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 648.41957CX1), and please credit any excess fees to such deposit account.

Respectfully submitted,

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